UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,185	12/05/2001	Colin D. Nayler	95-525	3474

20736 7590 03/31/2005

MANELLI DENISON & SELTER
2000 M STREET NW SUITE 700
WASHINGTON, DC 20036-3307

EXAMINER	
TORRES, JUAN A	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/002,185	NAYLER, COLIN D.	
	Examiner	Art Unit	
	Juan A. Torres	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *04-09-02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "10" and "20" have both been used to designate FIG.1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "30" and "46" have both been used to designate FIG.2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because:

a) In FIG. 2 block 34 one arrow is misplaced.

b) In FIG. 3 block 90 is an option statement and it is suggested to be represented as a diamond shape with two outputs "YES" and a "NO".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo (US 6097767).

As per claim 1 Lo discloses a method in a physical layer transceiver coupled to a prescribed network medium having an undetermined length, the method comprising: supplying a prescribed initial set of equalizer settings to a digital feedforward equalizer, the digital feedforward equalizer configured for outputting equalized signal samples based on equalizing received signal samples, having encountered inter-symbol interference by transmission via the prescribed network medium, according to supplied equalizer settings (figure 1 column 2 lines 45-47); comparing the equalized signal samples relative to a prescribed equalization threshold (figure 2 column 6 lines 1-4); and selectively changing the supplied equalizer settings, based on the comparing step, until the equalized signal samples reach the prescribed equalization threshold (column 7 lines 30-31).

As per claim 2 Lo discloses claim 1. Lo also discloses supplying the prescribed initial set of equalizer settings based on a predetermined characterization of the prescribed network medium at a prescribed length (figure 1 column lines 34-39 and figure 5 column 5 lines 23-27).

As per claim 3 Lo discloses claim 2. Lo also discloses selectively changing step includes successively supplying groups of equalizer settings based on the predetermined characterizations of the prescribed network medium at successively changing lengths (figure 2 column 1 lines 34-39 and column 7 lines 28-40).

As per claim 4 Lo discloses claim 3. Lo also disclose selectively changing step includes successively generating a count interval representing reception of a statistically-based prescribed number of signal samples (column 6 lines 21-24); first determining, within the count interval, a first number of the equalized signal samples having an absolute value that exceeds a first reference level occurs for an equalized signal (column 6 lines 24-43); and second determining whether the first number reaches the prescribed equalization threshold, the prescribed equalization threshold representing an expected number of detected signal samples that exceed the first reference level within the count interval (column 6 lines 44-57) .

As per claim 5 Lo discloses claim 1. Lo also disclose selectively changing step includes successively generating a count interval representing reception of a statistically-based prescribed number of signal samples (column 6 lines 21-24); first determining, within the count interval, a first number of the equalized signal samples having an absolute value that exceeds a first reference level occurs for an equalized signal (column 6 lines 24-43) ; and second determining whether the first number reaches the prescribed equalization threshold, the prescribed equalization threshold representing an expected number of detected signal samples that exceed the first reference level within the count interval (column 6 lines 44-57) .

As per claim 6 Lo discloses a physical layer transceiver configured for retrieving signal samples from a prescribed network medium having an undetermined length, the physical layer transceiver comprising: a digital feedforward equalizer configured for generating equalized signal samples from the retrieved signal samples and based on supplied equalizer settings, the retrieved signal samples having encountered intersymbol interference by transmission via the prescribed network medium (figures 1 and 2 blocks 16 and 32 column 1 line 23-32 and column); and an equalizer controller configured for supplying the supplied equalizer settings to the digital feedforward equalizer, the equalizer controller configured for supplying a prescribed initial set of equalizer settlings and comparing the equalized signal samples, having been generated based on the initial set of equalizer settings, relative to a prescribed equalization threshold, the equalizer controller configured for selectively changing the supplied equalizer settings until the equalized signal samples reach the prescribed equalization threshold (figure 2 block 36 column 4 lines 61-64).

As per claim 7 Lo discloses claim 6. Lo also discloses that the equalizer controller includes a coefficients generator configured for outputting the prescribed initial set of equalizer settings and the selectively changed equalizer settings based on a predetermined characterization of the prescribed network medium at respective prescribed lengths (figure 1 column lines 34-39 and figure 5 column 5 lines 23-27).

As per claim 8 Lo discloses claim 7. Lo also discloses that the equalizer controller further comprises a controller state machine configured for asserting an initial signal at initialization of the digital feedforward equalizer and a change signal based on

a comparison result between the equalized signal samples and the prescribed equalization threshold, the coefficients generator configured for outputting a corresponding group of equalizer settings representing a successively changing network medium length in response to each corresponding assertion of the change signal (figure 5 column 5 lines 23-27 and column 7 lines 28-40).

As per claim 9 Lo discloses claim 8. Lo also discloses that the equalizer controller further comprises: a timer configured for generating a count interval representing reception of a statistically-based prescribed number of signal samples (figure 5 block 74 column 6 lines 5-12); a counter configured for determining, within the count interval, a first number of the equalized signal samples having an absolute value that exceeds a first reference level occurs for an equalized signal (figure 5 block 76 column 6 lines 24-32); and a comparator configured for outputting an equalization status signal based on whether the first number reaches the prescribed equalization threshold, the prescribed equalization threshold representing an expected number of detected signal samples that have an absolute value exceeding the first reference level within the count interval, the controller state machine selectively asserting the change signal based on the equalization status signal (figure 5 block 78 column lines 44-57).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yu (US 5517527) discloses an adaptive equalizer to be implemented in a receiver to cancel the ISI with a decision feedback equalizer structure including a feedforward filter and a feedback filter. Werner (US 6069917) discloses a

decision feedback equalizer (DFE) with a feed-forward filter and a feedback filter using blind training of the DFE is performed using a statistical-based tap updating algorithm for the feed-forward filter, and a symbol-based type of tap updating algorithm for the feedback filter. Kuenast (US 5027369) discloses a rapid convergence decision feedback equalizer; the DFE has two separate portions which each function as an individual DFE having a different number of taps and different adaptive tap sizes; a first DFE portion operates alone to rapidly converge the measured error to a predetermined threshold; a control circuit is used to determine when the threshold is reached and to activate the second DFE portion for rapid further error convergence. Gelfand (US 6144697) discloses equalization techniques to reduce intersymbol interference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

M. Ghayour

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT
01-31-2005